

Customer No.: 31561  
Docket No.: 9747-US-PA  
Application No.: 10/065,566

AMENDMENTS

To the Claims:

Claim 1 (previously presented) A driving circuit for a display device having a plurality of pixels, wherein the driving circuit is used for driving a light-emitting diode in each pixel, the driving circuit comprising:

a light-emitting device driving unit, coupled to the light-emitting diode, for providing a driving current to the light-emitting diode selectively; and

a discharging unit, coupled to a point between the light-emitting device driving unit and the light-emitting diode, for discharging the light-emitting diode according to a voltage level of a control signal.

Claim 2 (previously presented) The driving circuit of claim 1, wherein the driving circuit further includes a light-emitting device selection unit coupled to the light-emitting device driving unit for receiving a scan signal and a data signal, and when the scan signal and the data signal are at logic level '1', the light-emitting device selection unit enables the light-emitting device driving unit to provide a driving current to the light-emitting diode.

Claim 3 (previously presented) The driving circuit of claim 2, wherein the control signal uses the scan signal from the next pixel, the discharging unit discharges the light-emitting diode in response to a logic state of the scan signal from the next scan line immediately.

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Claim 4 (previously presented) The driving circuit of claim 3, wherein the discharging unit discharges the light-emitting diode when the scan signal on the next pixel is at a logic level '1' or a high voltage level.

Claim 5 (previously presented) The driving circuit of claim 1, wherein the discharging unit is coupled to a ground potential so that electric charges are discharged from the light-emitting diode to the ground.

Claim 6 (previously presented) The driving circuit of claim 1, wherein the discharging unit is coupled to a negative voltage so that electric charges are discharged from the light-emitting diode to the negative voltage terminal.

Claim 7 (previously presented) The driving circuit of claim 1, wherein the discharging unit is a transistor and the transistor is switched on to discharge the light-emitting diode according to the voltage level of the control signal.

Claim 8 (previously presented) The driving circuit of claim 7, wherein the gate terminal of the transistor is connected to the control signal terminal and the drain terminal of the transistor is connected to a ground potential so that electric charges in the light-emitting diode discharge to the ground when the transistor is turned on by the control signal.

Claim 9 (previously presented) The driving circuit of claim 7, wherein the gate terminal of the transistor is connected to the control signal terminal and the drain terminal of the transistor is connected to a negative voltage terminal so that electric charges in the light-emitting diode discharge to the negative voltage terminal when the transistor is turned on by the control signal.

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Claim 10 (previously presented) The driving circuit of claim 1, wherein the light-emitting diode includes an organic light emitting diode (OLED).

Claim 11 (previously presented) The driving circuit of claim 1, wherein the light-emitting diode includes a molecular light-emitting diode.

Claim 12 (currently amended) A display device having a plurality of pixels, wherein each pixel has a driving circuit for driving a light-emitting diode inside each pixel, the driving circuit comprising:

a light-emitting device driving unit coupled to the light-emitting diode for providing a driving current to the light-emitting diode selectively; and

a discharging unit coupled to a point between the light-emitting device driving unit and the light emitting diode, for discharging the light-emitting diode according to a voltage level of a control signal.

Claim 13 (previously presented) The display device of claim 12, wherein the driving circuit further includes a light-emitting device selection unit coupled to the light-emitting device driving unit for receiving a scan signal and a data signal, and when the scan signal and the data signal are at logic level '1', the light-emitting device selection unit enables the light-emitting device driving unit to provide a driving current to the light-emitting diode.

Claim 14 (previously presented) The display device of claim 13, wherein the control signal uses the scan signal from the next pixel, the discharging unit discharges the light-emitting diode in response to a logic state of the scan signal from the next scan line immediately.

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Claim 15 (previously presented) The display device of claim 14, wherein the discharging unit inside the driving circuit discharges the light-emitting diode when the scan signal on the next pixel is at a logic level '1' or a high voltage level.

Claim 16 (previously presented) The display device of claim 12, wherein the discharging unit inside the driving circuit is coupled to a ground potential so that electric charges are discharged from the light-emitting diode to the ground.

Claim 17 (previously presented) The display device of claim 12, wherein the discharging unit inside the driving circuit is coupled to a negative voltage so that electric charges are discharged from the light-emitting diode to the negative voltage terminal.

Claim 18 (previously presented) A method of driving a display device by a driving circuit, wherein the display device has a plurality of pixels and the driving method is used for driving the light-emitting diode inside each pixel, the driving method comprising:

providing a driving current to one of the light-emitting diodes selectively; and  
discharging the light-emitting diode according from a point for connecting the light-emitting diode and the driving circuit to a voltage level of a control signal while the light-emitting diode is driven by a driving current.

Claim 19 (previously presented) The driving method of claim 18, wherein the step of providing a driving current to one of the light-emitting diodes selectively includes providing a driving current to the light-emitting diode when a scan signal and a data signal sent to the display device are at a logic level '1' or a high voltage level.

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Claim 20 (original) The driving method of claim 19, wherein the control signal is provided by the scan signal of the next pixel in the display device.

Claims 21-23 (canceled)

Claim 24 (currently amended) A circuit for driving a pixel in a display, wherein the driving circuit is used for driving a light-emitting diode in each pixel, the circuit comprising:

a first thin film transistor, coupled to the light-emitting diode, for providing a driving current to the light-emitting diode selectively;

a second thin film transistor, coupled to a point between a source/drain of the first thin film transistor and the light-emitting diode, for discharging the light-emitting diode according to a voltage level of a control signal; and

a third thin film transistor, coupled to the first thin film transistor, for controlling the first thin film transistor to provide the driving current to the light-emitting diode, wherein the control signal is activated by a scan voltage from a next scan line for a next pixel, the second thin film transistor discharges the light-emitting diode in response to a logic state of the scan signal from the next scan line immediately.

Claim 25 (previously presented) A driving method for a display, wherein the display has a plurality of pixels coupled to corresponding one of a plurality of scan lines, the driving method comprising:

switching the plurality of scan lines one by one;  
driving a light-emitting diode inside each pixel by providing a driving current to one of the light-emitting diodes selectively; and

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discharging the light-emitting diode from a point between the first thin film transistor and the light-emitting diode under the control of a scan voltage from the next scan line for a next pixel immediately after the next scan line being switching.

Claim 26 (new) A driving circuit for a display device having a plurality of pixels, wherein the driving circuit is used for driving a light-emitting diode in each pixel, the driving circuit comprising:

a light-emitting device driving unit, coupled to the light-emitting diode, for providing a driving current to the light-emitting diode selectively; and

a discharging unit, coupled to a point between the light-emitting device driving unit and the light-emitting diode, for discharging the light-emitting diode according to a voltage level of a control signal, wherein the control signal is activated by a scan voltage from a next scan line for a next pixel, and the discharging unit discharges the light-emitting diode in response to a logic state of the scan signal from the next scan line immediately.

Claim 27 (new) The driving circuit of claim 26, wherein the driving circuit further includes a light-emitting device selection unit coupled to the light-emitting device driving unit for receiving a scan signal and a data signal, and when the scan signal and the data signal are at a logic level '1', the light-emitting device selection unit enables the light-emitting device driving unit to provide a driving current to the light-emitting diode.

Claim 28 (new) The driving circuit of claim 26, wherein the discharging unit discharges the light-emitting diode when the scan signal on the next pixel is at a logic level '1' or a high voltage level.

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Claim 29 (new) The driving circuit of claim 26, wherein the discharging unit is coupled to a ground potential so that electric charges are discharged from the light-emitting diode to the ground.

Claim 30 (new) The driving circuit of claim 26, wherein the discharging unit is coupled to a negative voltage so that electric charges are discharged from the light-emitting diode to the negative voltage terminal.

Claim 31 (new) The driving circuit of claim 26, wherein the discharging unit is a transistor and the transistor is switched on to discharge the light-emitting diode according to the voltage level of the control signal.

Claim 32 (new) The driving circuit of claim 31, wherein the gate terminal of the transistor is connected to the control signal terminal and the drain terminal of the transistor is connected to a ground potential so that electric charges in the light-emitting diode discharge to the ground when the transistor is turned on by the control signal.

Claim 33 (new) The driving circuit of claim 31, wherein the gate terminal of the transistor is connected to the control signal terminal and the drain terminal of the transistor is connected to a negative voltage terminal so that electric charges in the light-emitting diode discharge to the negative voltage terminal when the transistor is turned on by the control signal.

Claim 34 (new) The driving circuit of claim 26, wherein the light-emitting diode includes an organic light emitting diode (OLED).

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**Claim 35 (new) The driving circuit of claim 26, wherein the light-emitting diode includes a molecular light-emitting diode.**